Project Plan

Contractor's Progress, Status and Management Report -- Monthly Progress Report

Period Covered by the Report
1 November through 30 November 1999

Date of Report: 2 December 1999

Wrist Interactive Device for Wearable PC
SBIR Phase II Topic N95-137
Contract No. N00421-97-C-1293
Dollar Value $1,708,653

ViA Inc.
11 Bridge Square
Northfield, MN 55057

Sponsor
Charles D. Caposell
Naval Air Systems Command
AIR-4.5T

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1. Progress & Plans

Hardware

The design, layout, and routing of the Dyconex rigid-flex board is almost complete. It has taked significantly longer than a standard board design because it is a new technology for ViA and we are learning how best to take advantage of it. The layout engineer has gone through two iterations already with the mechanical engineer to ensure that there are no interferences between parts on the top of the CPU board (WID201) and the bottom of the display board (WID203). Different designations are used, for clarity, for the different parts of what is really a single rigid-flex board. We are expecting to release the layout to Dyconex next week and to receive the boards by early January.

The design of the optics for Phase 3 is nearing completion. It will be integrated into the mechanical design of the WID case in December.

The Symbionics Bluetooth Development boards have been tested and their operation has been verified. Their performance is good, with very low error rates unless the receiver and transmitter are brought too close (due to saturation of receiver).

The layout and routing of the RF boards (WID204 and 14 WID204RFT test boards), the audio board (WID202), and all the supporting interface boards (WIDIB201, 202, 204) is completed. They will be built and delivered to ViA by next week.

Software

A significant amount of work was done on establishing communication with the display on the CMD Eval Kit over the parallel interface. The CMD interface ASIC relies on a ready (RDY) pin to signal to the host processor when it can write into the display's frame buffer (integrated onto the ASIC). While this signal is supported by the SA1110 processor, it is not present on the SA1100 processor, which is what we are currently utilizing on the WID101 board for software development. Thus, we had to devise a different way to emulate the RDY function using a GPIO pin on the StrongARM. This effort was successful and we can not proceed to use these boards to develop a CMD CE driver.

All three software engineers currently working on the WID team have been concentrating on studying the Bluetooth software stack. This is partly in preparation of the Bluetooth Developers' Conference held in Los Angeles Dec 6-9. Dick Thompson is developing the drivers needed on a Windows 98 PC to interface to the Bluetooth software over a USB connection. Jason Stewart is preparing for the Bluetooth conference by reading up on the HCI interface and thinking about how to develop an RFCOMM module for CE. Eric is looking at the lower end of HCI and also thinking about the interface to USB.

The transmission of audio packets from the WID to the ViA II has not been implemented yet. However, it appears from the Bluetooth documentation that it may be able to piggy-back such data packets onto acknowledgement packets that the WID (slave) needs to send to the ViA II (master) anyway.

Cumulative Project Cost*
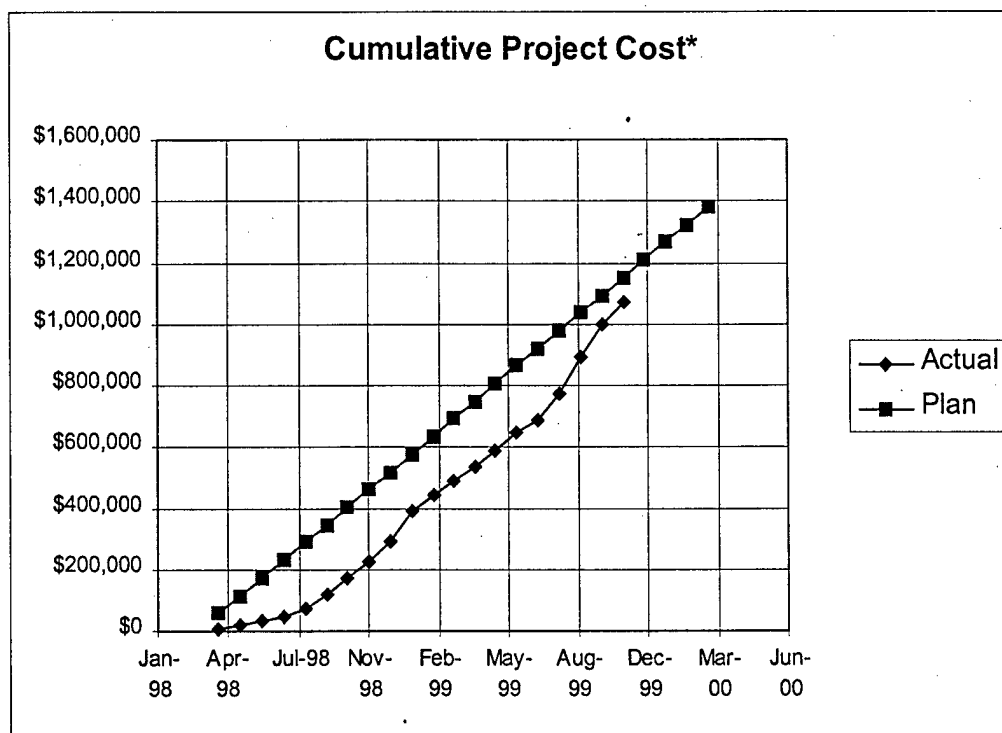
*without G&A and fee

2. Project Cost

Cost incurred for the period and total cost, without G&A and Fee:

Current Month's Cost*	Cumulative Cost
$72,426	$1,070,728

* Current month cost is 1 October through 31 October

Person-hours for the period and cumulatively:

Current Month's Hours	Cumulative Hours
795	14,159

3. Schedule and Staffing

One of our software engineers, Tim Anderberg, has left the company. His task was to develop the high-level CE software that would manage the routing of data frames and the graphical interface with the user. He came close to completing this task and left detailed documentation on the code he wrote and psuedocode for the functions he did not complete, so that his leaving will not affect the project adversely. Jason Stewart and Eric Bie will complete the CE high-level software toward the end of the project, once their current tasks are completed.

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